EPI-LOG

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Seattle & King County
Epidemiology, Prevention Division
401 Fifth Avenue, Suite 900
Seattle, WA 98104-2333

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Shelly McKeirnan, MPH Editor (shelly.mckeirnan@kingcounty.gov)

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Infants and Pertussis, *Protecting Our Most Vulnerable*

This year several states in the U.S. have reported an increase in pertussis cases with California reporting the most cases in 52 years. As of September 21, 2010 forty three confirmed cases of pertussis have been reported in King County this year, which is not unusual. Twenty-eight percent of cases reported were in infants under the age of one. This is the largest proportion of infants in the past five years (range 17% to 24%). For 50% of infant cases, the most likely source of infection was an adult household member. Forty-two percent of infants required hospitalization. No deaths have been reported in King County, but two deaths in infants have been reported in other counties in Washington State in 2010.

Preventing Pertussis in Infants

Infants aged less than 6 months experience the highest rates of severe disease and hospitalizations from pertussis. Because the first three doses of the 4-dose primary series of DTaP (diphtheria, tetanus, and acellular pertussis) vaccine are given at two, four, six, and months of age, even with age-appropriate vaccination these infants are not completely protected. The fourth dose of the primary series should typically be given 6-12 months after the third dose to maintain immunity during the preschool years.

Older children and adults serve as a reservoir of pertussis that places infants at risk. The availability of Tdap (tetanus, diphtheria, pertussis) vaccine for adolescents and adults provides an important way to indirectly protect vulnerable infants. A single dose of Tdap is recommended for adults 19 to 64 years of age to replace the next booster dose of Td. Health care providers can protect infants by recommending Tdap vaccine to eligible household members and close contacts of pregnant women and infants.

The Advisory Committee on Immunization Practices (ACIP) recommends that pregnant women who have not been previously vaccinated with Tdap receive a dose in the immediate post-partum period before discharge (and as soon as 2 years since the last Td dose). It is important to also vaccinate other eligible household members as soon as possible during the pregnancy. For complete Tdap recommendations see www.cdc.gov/vaccines/pubs/acip-list.htm (scroll down page to Tdap vaccine).

Testing and Reporting

Pertussis should be suspected in the differential diagnosis of:

- Patients of any age with cough illness >2 weeks duration
- Patients with respiratory illness of any duration who have had contact with persons with a prolonged cough illness, or a confirmed pertussis case
- Infants <12 months of age with respiratory tract symptoms of any duration, even if they are immunized against pertussis or test positive for RSV (respiratory syncytial virus).

Testing is available through the King County Public Health Laboratory (206-744-8950) and at many reference labs. A nasopharyngeal specimen for pertussis polymerase chain reaction (PCR) is usually preferred because it is more specific than culture and results are available more quickly. Pertussis cases are reportable to Public Health upon suspicion at (206) 296-4774. More information on disease reporting requirements for health care providers is available at: www.kingcounty.gov/healthservices/health/communicable/providers.asp

PERTUSSIS TIPS

- Once pertussis is diagnosed in a household, assess household and other close contacts for pertussis symptoms.
- In the youngest infants, atypical presentation is common - the cough may be minimal or absent and apnea may be the presenting symptom.
- Remember, infants are at rick for severe or fatal pertussis. When you suspect pertussis in an older child, adolescent, or adult, inquire about contact with infants and prescribe prophylaxis if indicated. Treatment and prophylaxis guidelines can be found at www.cdc.gov/mmwr/preview/mmwrhtml/rr5414a1.htm
- Adults with pertussis may have mild or atypical disease – pertussis should be considered if the person has been in close contact with a pertussis case.

Tularemia Case Summary

Case presentation: *In mid-July an adult male presented to a local Emergency Department (ED) with fever for four days, myalgias, enlarged right inguinal lymph nodes, and an ulcer on his right ankle with satellite lesions. One and a half weeks before presentation he had gone kayaking in the Mercer Slough, where he recalls wading in the water and getting multiple insect bites. His right ankle lesion began as a localized area of itchiness six days before presentation, which he noticed after jogging in Lincoln Park in West Seattle. He denied recent travel outside of King County. A culture of the ulcer was obtained and the patient was discharged with a course of cephalexin. He did not have any further episodes of fever, but his ankle lesion did not improve. Three days after his ED visit, the wound culture*

grew Francisella tularensis. He was switched to oral doxycycline and his ulcer began to heal. Testing at the Washington Department of Health Public Health Laboratory identified the isolate as subspecies holarctica.
Tularemia is a rare zoonotic bacterial disease caused by *Francisella tularensis.* Its reservoirs are small mammals such as rabbits, hares, squirrels, and mice. Humans can become infected through bites from infected insects and ticks, by direct contact with ill or dead infected animals, or from exposure to food, soil, or water that has been contaminated by infected animals. *F. tularensis* can survive for long periods in arthropod vectors and in the environment.

Person to person transmission does not occur, but laboratory personnel working with the organism can become infected unless proper biosafety procedures are followed. Therefore it is important to alert the laboratory when submitting a specimen for culture from a person who may have tularemia.

For more details about the clinical aspects of tularemia, please see the September 2009 issue of the "Epi-Log" (go to www.kingcounty.gov/health/cd, and click on "Epi-Log newsletter" under "Publications").

This most recent case could have acquired the infection either through exposure to contaminated water while putting his kayak in and out of the Mercer Slough, or from an insect bite some time during his exposure period, possibly during that same outing or while jogging in West Seattle.

Public Health Environmental Health Division contacted staff at both Mercer Slough and Lincoln Park. They reported more than the usual number of rabbits in the Mercer Slough area and mice and rats in Lincoln Park, but no evidence of animal die-offs.

More than a hundred species of animals can be infected with tularemia, including cats, dogs, pigs, and horses. Sheep are particularly susceptible to clinical disease. A statewide serosurvey of outdoor pet cats and dogs in Washington during 2004–2005 indicated that 0.6% had been exposed to tularemia. The incidence was highest in dogs and cats tested in southwest Washington (4.5%). The full spectrum of clinical signs is not known in animals and many cases may be asymptomatic. With the increase in rabbit populations in many areas of King County, veterinarians may encounter cases in cats and dogs that have caught rabbits. Symptoms in cats may be non-specific such as anorexia, weight loss, and vomiting.

Tularemia is enzootic in Western Washington with 1-10 cases reported annually. The last case in King County was in 2008, in a teenage falconer who fed rodents to his bird.

Potential sources of infection reported by Washington residents with tularemia include insect and animal bites, contaminated water, skinning or handling animal carcasses, and aerosol exposure while farming or using power landscape tools such as lawn mowers and weed eaters that disturb animal carcasses.

This unusual case highlights the value of getting detailed history and obtaining cultures for severe or unusual skin infections. Most skin and soft tissue infections are caused by gram positive organisms such as *Streptococci* and *Staphylococci*, but a patient's recent travel and activities could prompt the consideration of less common pathogens. While a history of a wound with freshwater exposure might bring pathogens such as *F. tularensis* to mind, a history of seawater exposure might suggest the possibility of *Vibrio* or *Aeromonas* infection. A comprehensive review of skin and soft tissue infections including those due to animal exposures is available free online from the Infectious Disease Society of America at http://www.idsociety.org (click on Practice Guidelines).

Health care providers should report cases of tularemia to Public Health within three work days by calling (206) 296-4774. Report laboratory exposures, clusters, or suspected bioterrorism immediately by calling the same number, 24 hours a day seven days a week, and ask to speak to the Communicable Disease Epidemiology & Immunization Section epidemiologist or physician on call.

Disease Reporting

AIDS/HIV ..... (206) 296-4645
STDs ..... (206) 744-3954
TB ..... (206) 744-4579
All Other Notifiable Communicable Diseases (24 hours a day) ..... (206) 296-4774
Automated reporting line for conditions not immediately notifiable (206) 296-4782

Hotline

Communicable Disease ..... (206) 296-4949

Public Health-Seattle & King County Online Resources

Home Page: www.kingcounty.gov/healthservices.aspx
The *EPI-LOG*: www.kingcounty.gov/health/epilog
Communicable Disease listserv (PHSKC INFO-X) at: mailman.u.washington.edu/mailman/listinfo/phskc-info-x
Influenza Updates, Vaccine Information, and Current Testing Guidelines: www.kingcounty.gov/health/h1n1

Reported Cases of Selected Diseases, Seattle & King County 2010

	Cases Reported In August		Cases Reported Through August	
	2010	2009	2010	2009
Campylobacteriosis	47	25	220	189
Cryptosporidiosis	2	3	11	16
Chlamydial infections	386	533	3771	4087
Enterohemorrhagic *E. coli* (including *E. coli* O157:H7 and non-O157)	3	11	15	35
Giardiasis	7	20	90	64
Gonorrhea	103	87	958	705
***Haemophilus influenzae* (cases <5 years of age)**	0	0	2	1
Hepatitis A	0	0	4	11
Hepatitis B (acute)	0	1	10	7
Hepatitis B (chronic)	60	50	450	425
Hepatitis C (acute)	1	0	6	2
Hepatitis C (chronic)	126	119	1114	1088
Herpes, genital (primary)	53	67	367	366
HIV and AIDS (includes only AIDS cases not previously reported as HIV)	25	20	255	229
Measles	0	0	1	0
Meningococcal Disease	0	1	4	3
Mumps	0	0	1	1
Pertussis	11	6	36	26
Rubella	0	0	1	0
Rubella, congenital	0	0	0	0
Salmonellosis	25	31	155	168
Shigellosis	9	3	28	42
Syphilis	11	19	161	103
Syphilis, congenital	0	0	0	1
Syphilis, late	2	8	50	57
Tuberculosis*	5	6	81	65